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Sharing: Post-Scarcity Beyond Capitalism?

Abstract

Regarding efficiency, efficacy and incentive, free-sharing online (of recordings, live-broadcasts, software and published works) outperforms market and property systems, by reducing costs of production and distribution, increasing quality and access, and better promoting creativity. Free-sharing online emerged within 'global network capitalism' and non-capitalist networks. Free-sharing of purely informational content online challenges capitalism by eliminating scarcity. However, post-scarcity is limited by constraints on time and the capacity to filter digital plenitude. These limits create scope for alternative business models. Free-sharing online tempers capitalism's 'tragedy of the anticommons'. However, to date, post-scarcity remains incomplete.

Introduction

This article begins with a brief account of the emergence of free-sharing online. This emergence is then located within 'global network capitalism' and non-capitalist global digital networks, before the relationship between free-sharing and capitalism is more fully explored. More specifically, here, an outline of the economic concepts of 'efficiency', 'efficacy' and 'incentive' creates a framework through which the challenge of free-sharing to markets and property-based arrangements can be evaluated. Following on from this, it is argued that free-sharing may afford viable 'alternatives to business' when it offers greater efficiency, efficacy and/or incentive. Where this is not so, 'alternative business models' may arise to sell what remains scarce. The examples of recordings, sports broadcasting, software and publishing are then examined. In each case, the relative efficiency, efficacy and incentive created by free-sharing and market-/property-based arrangements are addressed. In conclusion, it will be suggested that, whilst capitalism creates a 'tragedy of the anticommons', and free-sharing poses a challenge to this in creating post-scarcity in pure informational content, time, trust, the ability to filter information, and co-presence remains scarce. Whilst significant, the triumph of the commons remains constrained, at least for now.

A genealogy of free-sharing online

Free-sharing online developed from sharing compressed music files, through to larger visual recordings and, now, live content (Kirton and David, 2013). Digital compression formats were developed initially in the 1980s by a consortium of universities and businesses to enable primarily commercial distribution of content, both internally within the production process and externally to customers via CDs, DVDs, cable or satellite (David, 2010). The civilian Internet (initially in the US in the late 1980s), and the World Wide Web (initially in Europe in the early 1990s), were developed by non-commercial groups with the same technical aim: of enabling distribution of content, within research teams and to wider audiences. In 1999, Shaun Fanning's Napster combined the MP3 file-compression format, web-based Internet distribution, and a novel search and exchange program, to make free-sharing of digital music a global 'threat' to the traditional recording industry's business model. A cat-and-mouse game then ensued between intellectual property (IP) defenders and evermore legally and technically distributed forms of digital-sharing. After Napster was shut down, new services developed that avoided its central-server-based, legal 'Achilles heel'. Fully peer-to-peer (distributed exchange) services excluded service providers from liability. Peers- to-peer services (torrents), meanwhile, excluded up-loaders from liability. Today, peers-to-

peers services (streaming) exempts down-loaders. Each new generation of software removed the bottleneck that the law came to target within sharing networks (David, 2013). Technical development was driven by attempts to evade legal liability and to increase carrying capacity. Whilst compression first allowed small, recorded music files to be shared online, with long waits to download recorded visual content, the development of faster bandwidths enabled live-visual content to be viewed clearly online from the late 2000s (Birmingham and David, 2011; David and Millward, 2012). The capacity to share content freely has outstripped legal and technical attempts to prevent it (Brown, 2015).

Whilst free digital-sharing arose in the copyright domain (music, publishing, visual media and software), the 3D printer revolution (Rifkin, 2014) will make IP-rich physical goods available to 'download'. However, to date, 'free'-sharing of (IP-infringing) information contained in patent and trademark goods still requires what IP holders call 'pirate capitalist' intermediaries to actually make the usable objects (Rojek, 2015). This article, however, is primarily concerned with free-sharing rather than commercial generics, counterfeiting and piracy. As such, this article focuses upon the free-sharing of content protected under copyright - in particular, recorded music, live sports broadcasting, software and publishing (trade, journalistic and academic), with a brief note on film.

‘Global network capitalism’ or global network society?

Post-Cold War ‘global network capitalism’ has deregulated labour while strengthening property protection, particularly in the case of IP. In ‘global network capitalism’, monopoly IP protection has been extended in time, space, scope and depth (David and Halbert, 2015). Deregulated labour reduces the cost of physical things, whilst globally regulated IP increases the value of ‘immaterial content’. It is IP regulation that explains the relative value of ‘information’ over ‘objects’ today, not any ‘logic’ of an ‘information society’. The World Trade Organisation’s (WTO) first act was its 1994/5 Trade Related Aspects of Intellectual Property (TRIPS) Treaty. TRIPS acted to harmonise global IP protection. At the time, the perceived threat was commercial infringement. A year later, the World Intellectual Property Organisation’s (WIPO) Copyright Treaty (1996) first addressed the threat of free digital-sharing. In 1996, cheap CD burners were the perceived challenge (ibid).

Free-sharing within global digital networks must be located alongside the rise of ‘global network capitalism’ and the contradictions inherent within it (David and Halbert, 2015). On the one hand, globalisation furthers the interests of a market- and property-based system: it expands markets (through deregulation of trade barriers and integration of distribution chains); it extends property

rights protection, in particular over IP (harmonising national laws through multi- and bi-lateral treaties – Yu, 2015); and it reduces costs through global outsourcing of production to cheaper labour markets (Chon, 2015). On the other hand, globalisation works against these interests, by affording pirate, counterfeit and generic 'outsourcing' of production and distribution (Rojek, 2015). Similarly, digital networks expand markets and reduce costs for copyright holders, whether in music, film, broadcasting, software or publishing (David, 2013). This is even as digital compression, distribution and processing afford widespread circumvention of legal channels of circulation and technical means of encryption (David and Kirkhope, 2004). Even the 'capitalism' of 'global network capitalism' contains a contradiction between markets and IP monopoly. IP is designed to suspend market competition to protect property, but pirate capitalists propagate illicit markets at the expense of IP-based monopoly profits. Whether 'capitalism' is primarily defined by 'markets' (Weber, 1930) or by 'private property' (Marx, 1995) remains contested, and not just 'in theory'.

Yet, even as 'global network capitalism' laid down many of the contradictions in which free-sharing networks operate today, global networks are not simply 'capitalist'. Non-commercial actors played a crucial role in creating today's network infrastructure (in particular the Internet - Abbate 1999, and the Web

Bernes-Lee 2000). They continue to do so as part of a global network economy and culture of free-sharing.

The economics of sharing and of capitalism

Economics commonly concerns itself with questions of producing and distributing rivalrous goods - goods where one 'use' limits or even exhausts further use (Robbins, 1935). Property rights and markets are one (but not the only) set of social institutions designed to manage the rivalrous quality of time and things. Non-rivalrous goods, in contrast, are goods where one user's use does not limit further use (Phythian-Adams, 2015, p. 33). 'Sharing' relates to markets and property rights in divergent ways, depending upon the rivalrous or non-rivalrous quality of the goods being 'shared'. 'Sharing' rivalrous goods can take the form of renting, lending, disintermediated exchange and/or barter - although the term 'sharing' is problematic in relation to such financialised modes of allocation (Hern, 2015). Whilst such 'sharing' of one's own tangible goods and time may extend capitalism at the level of exchange relations, IP-infringing free-sharing challenges capitalism at the level of property rights. More specifically, digital networks may extend markets whilst undoing property rights (such as in the distribution of generic medicines and counterfeit designer goods, and in the production and distribution of 'pirate

capitalist' CDs and DVDs - Rojek, 2015); or, in cases where property rights are upheld, it may extend markets to *new forms* of rental, lending, direct exchange and barter (Reference examples from this special issue?). Additionally, digital networks can afford free-sharing of time and things within specified (high-trust) communities (Refer to example(s) from this special issue?). In relation to fully non-rivalrous informational goods, where there is no physical limit to multiple and simultaneous use, digital networks afford free-sharing that challenges *both* markets and property rights.

Free-sharing (as distinct from digitally enabled renting, paid lending, direct exchange and barter), if consigned to the private domains of friends and family, may not challenge markets and property rights. Unpaid domestic labour fundamentally underpins markets and property-based systems (Crompton, 1997, pp. 83-98), yet it is precisely the 'private' character of such 'giving' that has reinforced its theoretical and material undervaluation. However, digital networks increase the scope for free-sharing within a global 'public' domain. Free speech was central to the emergence of a public sphere in the 'long 18th century' (Habermas, 1992). Today, free-sharing is central to creating and defending a public domain in opposition to the full marketisation and proprietary enclosure of social life (Dutton, 2009).

How, then, does the free-sharing of digital goods challenge market- and property-based arrangements? Is free-sharing just an efficient (cheap) mode of distribution (i.e. copying), parasitising property-based production arrangements; is it a viable mode of production still requiring a market-based mode of distribution; or is it a viable alternative foundation for production and distribution? This issue can be broken down and explored in relation to three elements: efficiency; efficacy; and incentive.

Efficiency relates to the *cost* by which an end is achieved. Economists divide efficiency into the following modes: production, allocation, informational, transactional, and 'Pareto optimisation' (Heyne, 2008). Production efficiency refers to the cost of *making particular goods*, whilst allocational efficiency refers to optimising *investment of resources*. Informational efficiency, meanwhile, refers to the cost of *information needed in decision making*, and transactional efficiency refers to the cost of actually *acquiring*, *or accessing* something chosen.

Efficacy is closely connected to efficiency, but relates to the *utility* of outcomes, rather than just the cost of achieving them. It refers to both the *'quality' of the product made* and the *overall utility supplied* (the quantity of such quality). Whilst production and allocational efficiency are linked within a narrow definition of efficiency as concerning only the costs of production;

informational and transactional efficiency extend the concept of efficiency into the domains of circulation (i.e. distribution); they thus have a significant impact on issues of efficacy, of utility, in terms of informed choice and access. 'Pareto optimisation' refers to a state of overall efficiency where total utility cannot be increased by reallocating rivalrous resources. Whilst this zero-sum calculation is irrelevant in relation to non-rivalrous goods, the resource of time remains limited even, or perhaps especially, in relation to such digital plenitude and efficiency; the efficacy of these goods is thus impacted. This becomes very significant in the economics of post-scarcity, as will be shown below.

Incentive, meanwhile, refers to levels of motivation, either in terms of *techno-scientific innovation* or *artistic creativity*. This article demonstrates, then, how free-sharing of non-rivalrous informational goods (specifically) outperforms market and property-based systems across all three dimensions (efficiency, efficacy and incentive). Importantly, free-sharing does so in particular ways, within particular limits, and only for purely informational goods.

Alternative business models or alternatives to business?

Facebook's business model is built upon selling advertising to those who share their lives freely on its service. Google sells eyeballs to advertisers, primarily in

relation to freely shared content (Vaidhyanathan, 2012). YouTube, and other peer-based free-sharing services, also make their money from advertising. Freely shared content is, then, the basis for a range of very successful, alternative business models. Even as traditional record companies, film studios, publishers and broadcasters have bemoaned the rise of free-sharing, the largest of them are owned by cross-media conglomerates that sell the Internet access and services that enable infringement (Castells, 2009; David, Kirton and Millward, 2015). Freely shared content can be good for business, but only if, while the content is free, something remains scarce to intermediaries' potential customers. Informational content cannot be kept scarce within a global network society; indeed, it is this potential for *post-scarcity* that threatens/promises to turn reduced cost into radical price reduction, potentially to zero (Rifkin, 2014). What do remain scarce; however, are time, knowledge, physical material and co-presence. Where these things are not significant, free-sharing outperforms pay- to-access alternatives. Importantly, where such scarce resources *are* significant, markets continue to operate even when property rights in intangibles are not enforceable or necessary.

Nonetheless, where the *marginal cost* of the next copy of an informational good approaches zero, scarcity in such a good is abolished, and the need for -

and superiority of - markets and property rights as efficient and effective allocative mechanisms is challenged. Networked computers make this so for all purely informational content (recordings, broadcasts, software and written works). Nonetheless, marginal cost is not full cost. Prior *fixed costs* remain. Does the recovery of such fixed costs require markets and property rights? If free-sharing of outcomes does not incentivise the production of efficient and effective products (only instead parasitising prior achievements), markets and property rights may be warranted after all. It is to these three related issues, of efficiency, effectiveness and incentive, that this article now turns – and an examination of the aforementioned cases of music, live-sports broadcasting, software and publishing. In each case the relative merits of market-/property- and free-sharing-based arrangements will be compared in terms of efficiency, effectiveness and incentive respectively.

Music

Efficiency

Free-sharing of digital content brings the cost of each additional copy close to zero - what Jeremy Rifkin (2014) calls 'the zero marginal cost society'. These conditions can be seen most clearly in the case of recorded music. Free-sharing

was essential in the creation of the 'common standards' by which such efficiency was achieved and transaction costs, in particular, reduced to a minimum. Record companies in the early 1980s (led by the small number of 'major' labels) did manage to agree a common standard for the digital compact disc (CD), a much more efficient mode of production and distribution than vinyl (or tape). However, record companies failed to agree any common standard of encryption with the companies who would make the CD players (David, 2010). Similarly, record labels in the 1990s could not agree upon a common digital online platform through which 'their' music could be distributed even more efficiently. Different companies experimented unsuccessfully with stand-alone websites selling their own artists' work. This defence of each company's monopoly control over the distribution of its own content was undone by the development of Napster and subsequent peer-to-peer file-sharing services. These services harnessed the potential for compression, location and distribution beyond the divergent standards being offered by commercial actors. Without free-sharing establishing a common standard, record companies would not have made a deal with iTunes. Therefore, even Apple's proprietary service owes its existence to free-sharing (David, 2010). The same is also true of today's legal streaming services (e.g. Spotify and Beats). Such services seek to tame illegal free-copying simply by,

well, copying it, making free-access legal only after it had already become ubiquitous (David, 2016).

Efficacy

Free-sharing services have made all the recorded music currently in existence available to every networked computer user on the planet, for nothing, and instantly; this includes material not currently commercially available. Users can choose freely from across the sum of human musical history, to compare, sample and experiment with music of every conceivable genre and geographical origin. Whilst compression initially reduced sound 'quality', faster broadband Internet now makes it perfectly possible to receive high quality content online.

Incentive

The standard recording contract reflects an outdated and inefficient pre-digital production and distribution model David 2010: 118-43). Record companies offer artists 10-15% of net sales as royalties in exchange for copyright in the recorded work. The company then offers to sell - produce, manufacture, distribute, market and 'rights-manage' - this work (Hull, 2004). From this

arrangement, most artists end up owing their label money because not only does the record company take the greater share of net earnings, it also deducts the greater part of the cost involved in production, marketing and rights management from the royalties owed to the artists (and not from the greater share it already takes for itself). Failure to 'recoup' the greater part of the work's cost from the small fraction of sales value assigned to the artist in royalties means most recording artists remain in debt to their record companies even when their works are profitable for their labels. Most records do not make a profit and are subsidised by the few works that do recover their full cost; however, the number of records that recover their cost from total sales is far higher than the number that 'recoup', i.e. that recover their costs from the value of royalties alone. Whilst almost all records fail to 'recoup', a certain number, then, are profitable - just not for the artist who recorded them. Production, manufacture, distribution, and marketing are increasingly open to digital-sharing alternatives. In such circumstances, rights management (the fifth dimension of what record companies 'offer' artists) represents little more than the organisation of debt-bondage arising from traditional contracts.

Free-sharing offers scope to attract a paying live audience without incurring the debt that usually accompanies a record contract. Few artists actually get paid for their recorded works, so freely distributed work reaches a wider

audience at no loss to the artist (David, 2010). If recordings are freely given away, can there be any incentive to create them in the first place? The answer is yes. The reduction of opportunity costs incurred by fans (no longer having to balance the cost of recordings against that for concerts tickets) means more money is spent attending live-performances. Alan Krueger (2004) shows the causal relationship between reduced spending on recordings (due to free-sharing alternatives) and increased concert ticket sales and prices. Krueger also highlights that artists receive better payment from live-performance than from recording. As such, free-sharing actually increases the amount artists get paid. (Similarly, downloading/streaming films encourages cinema attendance, which has risen with free-sharing even as the video rental market has collapsed (David, 2010)).

Live sports broadcasting

Efficiency

The development of digital sports television in the 1990s occurred prior to Internet bandwidth being sufficient to allow Internet users to live-stream visual content. Satellite and cable providers used legal monopolies to buy up, and technical limits to control access to, formally free-to-air 'terrestrial' sports

broadcasts. Access was then sold back to fans for what had previously been free (David, Kirton and Millward, 2015). Fans have suffered spiralling monopoly prices to access content. Anxiety over such pricing led regulators in some countries to insist on rights being parcelled out to more than one provider. Fans in these jurisdictions now pay multiple providers to access the portion of content for which each provider has bought the monopoly rights. It is in both contexts that web-based live-streaming channels, via increased Internet broadband speeds, have grown in popularity. Cutting through legal and technical limits, live-streaming allows fans to access all matches, in all sports, in all leagues (if they are broadcast somewhere), freely through one platform (David, Kirton and Millward, 2016).

Efficacy

When sport was first broadcast on television in the 1930s, visual quality was so low viewers could not see the ball (Barnett, 1990). The same was true of early live-streaming. Today's broadband and digital television eliminate this inferior quality. Even matches embargoed for paying viewers in home countries at kick-off time are accessible to live-streamers (re-routing content from other jurisdictions). As such, quality and quantity are actually higher via streaming services than via proprietary channels. Set top router boxes that direct users to

streaming channels (reducing search time to parallel traditional television channel hopping), and virtual proxy networks that bypass legal site blocking tactics (by which rights holders have sought to limit the efficacy of streaming services), ensure that streaming services continue to offer more and better content for less.

As with free-sharing in music, the common platform created by live-streaming channels, via the common standards underpinning the Internet and the Web, undoes monopoly closure - and so increases informational and transactional efficiency, thereby offering maximum efficacy in terms of quality and overall utility.

Incentive

The claim that sport is best 'incentivised' by the escalating payments afforded by global digital subscription services is questionable at best. What Castells (2009) calls the 'Murdochisation' of sport is precisely what King (2002) calls 'hyper-commercialisation'. This model of sport assumes that money is the only incentive to perform. This assumption stands in stark contrast to principles of fair play and fan loyalty that underpin sport, and spectator sport in particular. The rise of free-streaming threatens hyper-commercialisation; this does not

harm sport itself, only those seeking to leverage significant profits from its supporters.

Rights revenue escalation has fuelled chronic player salary inflation, leaving around half of clubs in elite leagues technically insolvent, despite the flow of additional money (Bose, 2010). At the same time, player inflation does not incentivise better 'play'. It may even damage sports by creating a scenario where the same super-rich teams and leagues can afford all the best players, hence reducing the spectacle of 'competition'.

Software

Efficiency and efficacy

Free-sharing of information is fundamental to the creation of the 'common knowledge' that in turn enables fair access, informed choice and quality of outcomes in any transactional context (including, but not exclusively, markets). The creation of property rights in information - a pre-condition for markets in information - creates fundamental asymmetries between suppliers and prospective users, well summarised in Henry Hansmann's (1980) 'contract failure theory'. Where information is IP-protected, prospective users are denied the free and perfect information required to make optimal selection

decisions prior to purchase, and often even afterwards. Without reasonable knowledge, there can be no reasoned choice. Secondly, monopoly over informational goods restricts the supply of alternatives, disadvantaging consumers both in terms of immediate price competition and, further, in stifling future improvements induced by cooperation (or competition). Such 'market failure' (Weisbrod, 1977) is best solved by the free circulation of information as a 'public good'. Free-sharing of information, in maximising 'informational efficiency', leads to optimal efficacy in terms of the quality and availability of outcomes.

Jyn-An Lee (2015) documents the development of non-profit organisations dedicated to the promotion and protection of open access in the production of informational goods - such as the Free and Open Source Software (FOSS) movement, the Free Software Foundation (FSF), Creative Commons (CC), Copy Left, The Wikipedia Foundation, and the World Wide Web Consortium (W3C). It is not just that open source software, which is freely available to use and modify without payment or permission, outperforms proprietary code making (Moody, 2002). 'Common knowledge', as 'shared culture' and 'public good', is the foundation for future works and the best means of ensuring informed choice for users. As such, in terms of production and allocation efficiency, free-sharing outperforms proprietary models in software.

Incentive

The best demonstration of the inferiority of silo-based (privately owned) corporate research and development, relative to free-sharing-based innovation, is in digital rights management (DRM) programming and the computer hackers that break it. DRM is the point at which IP and IT (information technology) meet - what Laurence Lessig (1999) calls 'code as law'. If the law cannot prevent infringement, maybe better locks can. If hackers outperform IP-regulated coders in this domain - the domain that is the very foundation of IP in IT - it is hardly likely that IP-regulated/regulating code will be better anywhere else. The removal of Apple's Fairplay encryption from iTunes in 2008 (David, 2010) came as a result of the failure of Apple (the world's largest computer corporation by sales) to prevent its software being undone by hackers. Hackers' free-sharing approach to innovation routinely outperforms that of corporate rivals. Apple's Fairplay is just the most famous illustration of what Pekka Himanen (2001: 111-35) calls 'the hacker ethic and the spirit of informationalism', and Johan Söderberg (2008: 190-92) calls 'play struggle'. This willingness to co-produce code for the sake of recognition within a community of creative hackers routinely overcomes silo-based research carried out by 'code-monkeys' and 'micro-serfs' (Coupland, 1995) - people

employed to ‘create’ code, but who are alienated from what they produce. Ironically, hackers feel greater ‘ownership’ over what they co-produce for nothing and give away for free, than do employees paid to produce but whose work is taken from them by their employer.

Journalistic Publishing

Efficiency

Far from causing the degrading of print and broadcast journalism, the Internet’s challenge is as a substitute: the rise of ‘citizen journalism’ (Allen, 2013), freely sharing content online. Abraham Zapruder sold the rights over his footage of John F. Kennedy’s killing in 1963 to Life magazine for $150,000 (US). The footage was not seen by the public for over a decade. George Holliday filmed the beating of Rodney King in 1991 on an early digital camcorder. His attempt to sell the footage failed and it was released publically within a week. The fusion of digital mobile phones, cameras and the World Wide Web meant footage of the Asian Tsunami of 2004 was instantly relayed worldwide by those present and victim to the events. The killing of Colonel Gadhafi in Libya in 2011 was filmed and broadcast on the phones of the killers themselves. More recent staged killings by terrorists escalate such grotesque ‘un-mediated media’

spectacle. Witnesses, participants, and even the perpetrators of ‘news’, now also broadcast this ‘news’, and do so first.

Relying upon citizen journalistic content, such as in the use of photographs taken by Colonel Gadhafi’s killers of his killing and his corpse on the front page of The Sun newspaper in 2011, cuts costs. Reporters, photographers and other news staff have been made redundant (Allen 2013). The killing of US television news reporter Alison Parker and cameraman Alan Ward by a former (but recently sacked) colleague in August 2015, and the killer’s online broadcast of the killings, adds another sickening twist to this dynamic. Cutting costs by outsourcing to more efficient, free, online sources further weakens the rationale for accessing such ‘old’ media.

Efficacy

The Internet is not to blame for ‘the crises’ in journalism and broadcast news. A ‘digital revolution’ in the 1980s and 1990s, in publishing and broadcasting (not over the Internet), saw an explosion in both the number of titles via digitised production techniques, and the number of channels via satellite and cable (McRobbie and Thornton, 1995). This spread advertising revenues ever thinner, putting particular pressure on ‘expensive’ in-house news production

(Curran and Seaton, 2010). Neither is the Internet to blame for the supposed rise of 'churnalism' (Davies, 2008), the reliance of cash-strapped and time-short news-makers on the pre-packaged 'sound bites' and 'press releases' of powerful actors and institutions. The 'hierarchy of news', and 'the news cycle's' reliance upon dominant voices to supply most content, is nothing new (Cohen, 1972; Hall et. al, 1978; and Habermas, 1992).

The 'editorial' defence of traditional broadcast and print journalism, that professional news makers are best able to select and package events, becomes problematic when such editorial selection has become synonymous with editorial 'bias' in favour of advertiser and proprietor interests (Habermas, 1992); additionally, titles and channels find themselves continually 'behind the curve' (relative to the Internet) in revealing the very sensational human interest scoops in which, until recently, contemporary 'news' (infotainment) makers had believed they were the leaders (Castells, 2009). With these issues in mind, it becomes harder to defend 'quality' news production against direct Internet citizen journalism. Such difficulties are compounded by the recurrent use of citizen up-loaded content in commercial media coverage.

However, the choice by Wikileaks in 2011, to co-publish and co-edit (with various 'quality' newspapers) evidence from US Afghan and Iraqi war logs,

along with an array of its embassy cables (Beckett and Ball, 2012) suggests that editorial efficacy remains valued sometimes. This case indicates not just the desire of traditional media to draw upon freely shared whistle blower sites like Wikileaks, but also Wikileaks' desire for the credibility and audience reach of traditional quality newspapers.

Incentive

The incentives for 'citizen witnesses' to 'report' their own direct experiences to the world via new media sharing channels may be similar to those that guide 'professional' journalists: the desire to tell the truth and expose lies. Other incentives, such as political interest and self-publicity, are also present in both citizen and professional reporting. The lack of payment, and the lack of editorial bias, favours citizen journalism over paid forms. The fact that professional journalists also blog, tweet and up-load content for free via sharing services highlights that the 'incentive' to *tell it like it is* goes beyond the bounds of traditional media editorial constraints, even for those working within conventional media. That audiences sometimes 'trust' particular professional sources to select and interpret for them also suggests that pure information is not always enough. Information overload creates problems in a

post-scarcity world that cannot always solved without payment (Anderson 2008).

Academic publishing

Efficiency

Academic journal prices rose 3000% in the last three decades of the 20th century, and they continue to spiral upwards at an average of 13% a year (Thompson, 2005). Free contributions by authors are reviewed free of charge by other academics, and are also edited in most cases without payment. Commercial publishers, noting a captive market in university libraries, bought up key titles and now sell content back to the very academics that made such content freely available in the first place. The struggle within digital networks between open access and digital closure (for example, firewalls and subscription services), is ongoing (David, 1996; Vaidhyanathan, 2012). Academic authors are unpaid in almost all cases. Where payments are made, for textbooks and commissioned reports, the academic credibility of the work is often questioned.

Efficacy

If academics want to be read, and if their work has some value to either an academic or a non-academic audience, its free circulation online can only benefit both author and reader. As work is rarely produced for payment, free circulation cannot reduce quality or productivity, but it can increase access and impact. The quality of academic research and future publications depends upon access to prior work, so, again, free-sharing can only increase the overall quality and utility of intellectual content. The expression 'standing on the shoulders of giants' in practice means 'looking over the shoulders of giants' - in order to access and read their work.

Incentive

The incentive structure in science is to give knowledge away to receive credit as discoverer/innovator (Merton, 1972). Charles Darwin's race to publish 'his' theory of evolution arose because, if Alfred Wallace had published first, it would have been Wallace instead who received the epithet 'his'. Scientists are incentivised to publish their results without payment to gain recognition as scientists. This is what Robert Merton (1972) called 'academic communism', the principle that all work should be made available to the community of researchers such that credit could be awarded, criticism made and future development facilitated. This gift economy is not unbridled altruism. Freely

sharing your work is also the best way to promote your career and your research.

Trade publishing

Efficiency

Free-sharing of creative content is the well-spring for new works. This is a pressing justification for libraries, whether of stone and paper or digital networks (Vaidhyanathan, 2004). Following this line of argument, the best and cheapest way to promote literacy and literature is to make the entire stock of past literature accessible to all, readers and prospective authors alike.

Free-sharing of books online creates a 'very long tail'. Chris Anderson's (2008) 'long tail' describes how Amazon's stock list exceeds that of any physical bookshop, and how Amazon's profits stem more from the sum of all the small sales than from the best sellers that provide bookshops with most of their profit. A 'very long tail' is produced when all the books currently in or out of print are made available online, potentially for nothing. The Google books project, currently on hold for legal reasons (Vaidhyanathan, 2012), could afford such a 'very long tail', extending the leap in transactional and informational efficiency free-sharing online already delivers.

Efficacy

Since the US signed the Berne Treaty in 1988, and after TRIPS, global IP protectionism has incentivised the rise of 'big books' (celebrity cookbooks, 'pot-boilers' and 'repeaters'). Horizontal and vertical integration of publishing houses within global cross-media corporations, the outsourcing of new content-'scouting' to agents who must deliver works that fit the 'big book' frame, and a diminishing market share to those who do not have 'profile' (media presence), 'track record' (past sales), 'comps' (similarity to existing works) or 'fit' (a media-marketable 'personality'/ 'life'), mean only a few hundred 'established' and/or corporate media-'friendly' authors make a living from copyright royalties (Thompson, 2012). Global copyright extension has reduced quality and choice. Free-sharing - in reducing the profits currently driving the 'big books' model of production, distribution and marketing - would at the least offer wider variety (assuming authors still write – see below).

Incentive

T. S. Eliot suggested that: 'Immature poets imitate, mature poets steal'. He was not the first to say this! Eliot 'borrowed' the line from Mark Twain, who was

also no slouch in taking good ideas when he found them (Vaidhyanathan, 2003). Prior to joining the Berne Treaty, Twain's United States did not respect the copyright of foreign authors, which (paralleling Krueger's findings regarding music and live-performance today) explains why Charles Dickens made more money from speaking tours in America than he did selling books in his own (copyright-respecting) England (Pearl, 2013).

Most writers earn more from working for hire - as journalists, teachers, public speakers, ghost writers, and so on than from 'author' royalties. The free-distribution of their written work is good publicity for the 'work' most actually make a living from (Silbey, 2015). Free circulation of an author's work is in fact rather a good way to build a paying fan-base, when, for hundreds of thousands of published authors, the standard copyright closure model has failed (Liebler, 2015).

The 'tragedy of the Anticommons'

Research on rivalrous 'common pool resources' (Ostrom 1990) shows how non-proprietary and non-market-based sharing communities regulate over-use; debunking metaphorical overextension of Garrett Hardin's (1968) 'tragedy of the commons'. Similarly, free-sharing of non-rivalrous informational goods (Hess and Ostrom, eds., 2011, and in this article) shows both the *capacity* of

the commons; and overcomes the 'tragedy of the anticommons' (Heller 1998) when property rights create sub-optimal (monopoly) levels of production and pricing, or where multiple property claims generate gridlocked non-production (Heller 2008). Table 1, summarises 'The benefits of free-sharing'.

Insert Table 1 near here!

Efficacy, in terms of quality of outcomes, is not improved by markets and property rights. The 'tragedy of the anticommons' is manifested in the inferiority of silo-based software coding, relative to open source programming and hacker practices. Where knowledge is privately owned and sold, 'contract failure' and 'market failure' produce further 'tragedies of the anticommons' in undermining choice and quality for users. Efficacy, in terms of total utility, is restricted and prices escalate via pay-to-view digital subscription services (and legal attempts to block free-access alternatives) - this relative to the cost (free) and access (everything, everywhere) provided by live-streaming services. Global IP regulation and cross-media integration has seen book sales concentrate in a shrinking number of formulaic 'big books'. The commodification of news diminishes the quality of public discourse. Copyright

control over academic journal articles enables chronic ‘price gouging’ and places new knowledge beyond most people’s reach.

Copyright in recorded music fails to reward or incentivise artists, leaving most in debt to their record companies, as most sales revenue goes to repay record companies for the cost of their grossly inefficient model of production and distribution. ‘Play struggle’ and the ‘hacker ethic’ better incentivises than does corporate control over employees. Similarly, peer recognition fuels academic writing, not payment for publication. Direct fan engagement via free-access offers more opportunity for payment to more authors than the globally IP-regulated, ‘big books’ industry model. Citizen witnessing and fan/club loyalty offer alternative models of incentive to the hyper-commercialism of ‘Murdochisation’, without its corrosive influence on both professional journalism and sport. Downloading and streaming of films for free has increased cinema attendance.

Conclusions: the triumph of the commons?

Free-sharing of information undoes the ‘tragedy of the anticommons’ without creating a new ‘tragedy of the commons’. Sharing fosters greater efficiency in

production and distribution, and - via increased informational and transactional efficiency - higher efficacy in terms of utility (quality and overall access); at the same time it offers more effective incentives. Post-scarcity challenges traditional market- and property-based business models aiming to sell content that is otherwise freely available. Post-scarcity is also a challenge for alternative business models based on selling advertising linked to free content. Advertising revenue is increasingly thinly spread as content availability proliferates. Old media formats – newspapers, television and academic journals - feed on free content, but are also challenged by new-media channels that provide access to the same content faster, more cheaply and more conveniently.

Whilst free-sharing maximises efficiency in production and allocation, enhances efficacy in terms of informational and transactional costs, and offers incentive to creative workers, profit can still be made in offering things that remain scarce. In many ways, free-sharing, in reducing costs, increasing quality and widening distribution, creates such business opportunities. Google, Facebook, YouTube, Spotify and peer-based free-sharing services/sites exemplify the new breed of advertising-funded, free content-accessing and filtering services. They manifest the triumph of free-access over markets and property rights in relation to informational content, but they also make money.

These services replace ownership and selling with forms of accessing and filtering content. They offer management of post-scarcity, not a means for allocating scarce content. What remain scarce are time and the capacity to filter (edit, understand or trust) the vast quantities of complex and often contradictory content available online. It is time-saving and filtering, not scarcity of content, that is valued in these companies. Google routinely alters its search algorithms to limit manipulation by those seeking to raise their ranking in free online searches (Vaidhyanathan, 2012). This creates a market for paid search optimisation specialists. The anti-virus computer security industry likewise thrives on maximising perceived hacker threats (Wall, 2007: 16-27).

Where pure informational content ceases to be scarce, trust and co-presence remain limited. As this article has highlighted, artists, performers, authors and programmers can earn a better living from new, direct exchanges with fans, audiences and end-users precisely because free-sharing eliminates opportunity costs and out-dated production, promotion and distribution costs. Live-performance earnings increase, as do earnings from direct sales and self-production. Free-sharing is not an alternative to such, at least partially 'post-capitalist', disintermediated exchange. Free-sharing enables this positive

revaluation of labour, even as it also creates opportunities for new forms of corporate filtering.

There is no editorial nexus binding online content to advertiser and proprietary interests. Traditional broadcast and print media outlets need to earn trust in their editorial practice. In an age of free-sharing, trust is harder to earn. This is a good thing. Just as Rifkin (2014) is wrong to think mass online open courses (MOOCs) are fundamentally undoing the utility of a 'traditional' university education, so it is that, even when information is free, demand remains, in multiple domains, for those who can translate information into knowledge. Increased earnings from live-performance due to publicity and reduced opportunity costs mean free-sharing benefits performers, but there may never be another 'studio album' like *Sargent Pepper's* or *Pet Sounds*. Academic authors largely follow a free-sharing ethos, but 'trade' authors will see more radical disruption, though most will benefit. The future of journalism is even more challenging. Elite sports 'players' (on and off the field) may see their earnings fall, whilst fans gain more control. Software developers will have to innovate to survive, but this is no bad thing.

Additionally, in many cases, content is freely accessible but remains illegal. The law continues to uphold markets through defending property rights, which

depend upon fabricating scarcity to warrant pricing. Post-scarcity in non-rivalrous goods affords forms of 'post-capitalism'. However, rivalrous physical infrastructure (such as network and computer provision) remains 'private property'; and time-saving, filtering, trust and interpreting services can still find a market. Property rights and markets are not the best (efficient, effective and incentivising) means of organising the production and distribution of post-scarcity informational content. Free-sharing is. Whether markets and property rights are the best means of allocating access to *scarce things* is beyond the scope of this paper. The 3D printer revolution, however, will extend post-scarcity deep into what is currently the domain of physical rivalrousness. Extending post-scarcity will then raise further questions concerning what can and should best be free.

References

Abbate, J. (1999) *Inventing the Internet*. Cambridge MA: MIT Press.

Allen, S. (2013) *Citizen Witnessing*. Cambridge: Polity.

Anderson, C. (2008) *The Long Tail*. New York: Hyperion.

Barnett, S. (1990) *Games and Sets: The Changing Face of Sport on Television*. London: British Film Institute.

Beckett, C. and Ball, J. (2012) *Wikileaks: News in the Networked Era*. Cambridge: Polity.

Berners-Lee, T. (2000) *Weaving the Web*. San Francisco: Harper Collins.

Birmingham, J. and David, M. (2011) Live-streaming: will football fans continue to be more law abiding than music fans? *Sport in Society*, **14,** 69-81.

Bose, M. (2010) The deflating world of English football. *The Spectator*, 20 February.

Brown, I. (2015) Copyright technologies and clashing rights. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 567-85. London: Sage.

Castells, M. (2009) *Communication Power*. Oxford: OUP.

Chon, M. (2015) Slow logo: brand citizenship in global value networks. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 171–88. London: Sage.

Cohen, S. (1972) *Folk Devils and Moral Panics*. St. Albans: Paladin.

Coupland, D. (1995) *Microserfs*. New York: Flamingo.

Crompton, M. (1997) *Women and Work in Modern Britain*. Oxford: OUP.

Curran, J. and Seaton, J. (2010) *Power Without Responsibility*. Abingdon: Routledge.

David, M. (1996) Information: culture or capital? *Radical Philosophy*, **79**, 56.

David, M. (2010) *Peer to Peer and the Music Industry: The Criminalization of Sharing*. London: Sage.

David, M. (2013) Cultural, legal, technical and economic perspectives on copyright online: the case of the music industry. In W. H. Dutton (ed.) *The Oxford Handbook of Internet Studies*, pp. 464-85. Oxford: OUP.

David, M. (2016) The legacy of Napster. In A. Whelen and R. Nowak (eds.) Networked Music Cultures: Contemporary Approaches, Emerging Issues, pp. **** London: Palgrave.

David, M. and Halbert, D. (2015) *Owning the World of Ideas*. London: Sage.

David, M. and Kirkhope, J. (2004) New digital technologies: privacy/property, globalization and law, *Perspectives on Global Development and Technology*, **3**, 437-49.

David, M., Kirton, A. and Millward, P. (2015) Sports television broadcasting and the challenge of live-streaming. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 435-50. London: Sage.

David, M., Kirton, A. and Millward, P. (2016) Castells, 'Murdochization', economic counterpower and live-Streaming, *Convergence*, ****

David, M. and Millward, P. (2012) Football's coming home: Digital reterritorialization, contradictions in the transnational coverage of sport and the sociology of alternative football broadcasts, *British Journal of Sociology*, **63**, 349–69.

Davies, N. (2008) *Flat Earth News*. London: Chatto and Windus.

Dutton, W. (2009) The fifth estate emerging through the network of networks, *Prometheus*, **27**, 1-15.

Habermas, J. (1992) *The Structural Transformation of the Public Sphere*. Cambridge: Polity.

Hall, S., Critcher, C., Jefferson, T., Clarke, J. and Roberts, B. (1978) *Policing the Crisis: Mugging, the State and Law and Order*. London: MacMillan.

Hansmann, H. (1980) The role of nonprofit enterprise, *Yale Law Journal*, **89**, 835–901.

Hardin, G. (1968) The tragedy of the commons, *Science*, **162,** 1243–8.

Heller, M. (1998) The Tragedy of the Anticommons: Property in the Transition from Marx to Markets. Harvard Law Review, **111**, 621-88.

Heller, M (2008) *The Gridlock Economy*. New York: Basic Books.

Hern, A. (2015) Why the term 'sharing economy' needs to die, *Guardian Online*, 5 October. Available online at: http://www.theguardian.com/technology/2015/oct/05/why-the-term-sharing-economy-needs-to-die [Accessed 5 October 2015]

Hess, C. and Ostrom, E. (eds.) (2011) *Understanding Knowledge as a Commons*. Cambridge MA: MIT Press.

Heyne, P. (2008) Efficiency. In D. R. Henderson (ed.) *Concise Encyclopedia of Economics* (2nd ed.). Indianapolis: Library of Economics and Liberty. Available online at: http://www.econlib.org/library/Enc/Efficiency.html [Accessed 1 November 2015]

Himanen, P. (2001) *The Hacker Ethic and the Spirit of the Information Age*. London: Secker and Warburg.

Hull, G. (2004) *The Recording Industry*. London: Routledge.

King, A. (2002) *The End of the Terraces: The Transformation of English Football in the 1990's*. London: Leicester University Press.

Kirton, A. and David, M. (2013) The challenge of unauthorised online streaming to the English Premier League and television broadcasters. In B. Huchins and D. Rowe (eds.) *Digital Media Sport: Technology, Power and Identity in the Network Society*, pp. 81-96. London: Routledge.

Krueger, A. (2004) *The Economics of Real Superstars: The Market for Rock Concerts in the Material World*. Lunchtime speech, 12 April 2004. Available online at: http://arks.princeton.edu/ark:/88435/dsp016108vb25k [Accessed 23 February 2016]

Lee, J. (2015) Non-profits in the commons economy. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 335-54. London: Sage.

Lessig, L. (1999) *Code and Other Laws of Cyberspace*. New York: Basic Books.

Liebler, R. (2015) Copyright and ownership of fan created works: fanfiction and beyond. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 391–403. London: Sage.

McRobbie, A. and Thornton, S. (1995) Rethinking 'moral panic' for multi-mediated social worlds, *British Journal of Sociology*, **46,** 559–74.

Marx, K. (1995) *Capital: An Abridged Version*. Oxford: Oxford Paperbacks.

Merton, R. (1972) The institutional imperatives of science. In B. Barnes (ed.) *Sociology of Science*, pp. 65-79. London: Penguin.

Moody, G. (2002) *Rebel Code: Linux and the Open Source Revolution*. London: Penguin.

Ostrom, E. (1990) *Governing the Commons*. Cambridge: CUP.

Pearl, M. (2013) Dickens vs America, *Intelligent Life*. Available online at: http://moreintelligentlife.co.uk/story/dickens-vs-america [Accessed 10 September 2015]

Phythian-Adams, S. (2015) The economic foundations of intellectual property: an arts and cultural economist's perspective. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 28-51. London: Sage.

Rifkin, J. (2014) *The Zero Marginal Cost Society*. New York: Palgrave Macmillan.

Robbins, L. (1935) *An Essay on the Nature & Significance of Economic Science*. London: Macmillan.

Rojek, C. (2015) Counterfeit commerce: the illegal accumulation and distribution of intellectual property. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 189-206. London: Sage.

Silbey, J. (2015) *The Eureka Myth: Creators, Inventors, and Everyday Intellectual Property*. Stanford CA: Stanford University Press.

Söderberg, J. (2008) *Hacking Capitalism: The Free and Open Source Software Movement*. Abingdon: Routledge.

Thompson, J. (2005) *Books in the Digital Age*. Cambridge: Polity.

Thompson, J. (2012) *Merchants of Culture*. Cambridge: Polity.

Vaidhyanathan, S. (2003) *Copyrights and Copywrongs*. New York: New York University Press.

Vaidhyanathan, S. (2004) *The Anarchist in the Library*. New York: Basic Books.

Vaidhyanathan, S. (2012) *The Googlization of Everything*. Los Angeles: University of California Press.

Wall, D. (2007) *Cybercrime*. Cambridge: Polity.

Weber, M. (1930) *The Protestant Work Ethic and the Spirit of Capitalism*. London: George Allen and Unwin.

Weisbrod, B. (1977) *The Voluntary Nonprofit Sector: An Economic Analysis*. Lexington: Lexington Books.

Yu, P. (2015) Deja vu in the international intellectual property regime. In M. David and D. Halbert (eds.) *The Sage Handbook of Intellectual Property*, pp. 113–29. London: Sage.

Table 1: The benefits of free-sharing

	Efficiency	**Efficacy**	**Incentive**
Music	Free publicity and distribution	Everything – everywhere	Collapsed opportunity cost
Software	Productivity and reduced cost	Informed choice and enabling development	Peer recognition, 'hacker ethic' and 'play struggle'
Sports Live-Streaming	Single platform for all content	More choice, everywhere, for everyone	Fan support beyond hyper-commercialisation
Trade Publishing -	Cost reduction for readers and writers	'The very long tail'	New author/fan engagement beyond 'big books'
Academic Publishing -	Free	Open access	Peer recognition
Journalistic Publishing -	Free content	As it happens, without editorial bias	Citizen witness